

City of Wadsworth, OH***Connected Grid Project*****Abstract**

The City of Wadsworth, OH's (Wadsworth) Connected Grid project involves system-wide deployment of advanced metering infrastructure (AMI) and targeted installation of in-home displays, home area networks, programmable communicating thermostats, load control devices, and distribution automation equipment. The smart meters provide two-way communication, allowing customers to view their energy use and Wadsworth to better monitor customer demand. Load control devices and programmable communicating thermostats help Wadsworth manage its peak load and reduce electricity costs for customers. Wadsworth is also upgrading and expanding its distribution automation equipment, including installation of automated reclosers (feeder switches) and capacitor bank controls. This is expected to improve reliability, reduce operations and maintenance costs, and decrease distribution energy losses.

Smart Grid Features

Communications infrastructure allows two-way communication between Wadsworth's data management center and customer meters, as well as distribution monitoring systems. Wadsworth is also implementing a 24-mile fiber optic network to support the increased data traffic from the metering and distribution automation systems.

Advanced metering infrastructure includes a system-wide deployment of approximately 12,750 residential and commercial/industrial smart meters. The residential smart meters are home area network-compatible for future integration with other in-home devices such as smart appliances. The smart meters help to reduce meter reading costs by reducing truck rolls and fuel consumption.

Advanced electricity service options include in-home displays and programmable communicating thermostats. Web portals are available to all customers and enable them to view their electricity use and utilize the in-home energy technologies if they choose.

At-A-Glance

Recipient: City of Wadsworth, OH

State: Ohio

NERC Region: ReliabilityFirst Corporation

Total Budget: \$10,823,539

Federal Share: \$5,411,769

Project Type: Advanced Metering Infrastructure and
Customer Systems
Electric Distribution Systems

Equipment

- 12,750 Smart Meters
- AMI Communication Systems
 - Meter Communications Network
 - Backhaul Communications
- Meter Data Management System
- 6,000 In-Home Displays
- 3,000 Programmable Communicating Thermostats
- Customer Systems for 12,750 customers
 - Home Area Networks
 - Customer Web Portal
 - Direct Load Control Devices
- Distribution Automation Equipment for 16 out of 16 Circuits
 - Distribution Management System
 - Distribution Automation Communications Network
 - Automated Distribution Circuit Switches
 - Automated Capacitors
 - Automated Voltage Regulators

Time-based Rate Programs

- Time of Use

Key Targeted Benefits

- Reduced Electricity Costs for Customers
- Improved Electric Service Reliability, Power Quality
- Reduced Meter Reading Costs
- Reduced Operating and Maintenance Costs
- Reduced Costs from Equipment Failures, Distribution Line Losses, and Theft
- Reduced Truck Fleet Fuel Usage
- Reduced Greenhouse Gas and Criteria Pollutant Emissions

City of Wadsworth, OH (continued)

Direct load control devices include load control relays connected to the home area network and the smart meters. These devices enable Wadsworth to control certain appliances in exchange for rebates or electricity price reductions. Wadsworth plans to use these devices to limit its peak load and defer investment in distribution capacity.

Time-based rate programs are being evaluated for implementation after the AMI deployment is complete.

Distribution automation systems include automated feeder switches, automated capacitor bank controls, and a distribution management system. These assets improve distribution system reliability and operational efficiency.

Distribution system energy efficiency improvements involve the integration of capacitor automation and a power quality monitoring system. The capacitors improve voltage control, power quality, and distribution capacity by reducing energy losses on the distribution system.

Timeline

Key Milestones	Target Dates
AMI assets deployment begins	Q3 2010
Distribution automation asset deployment begins	Q4 2011
AMI asset deployment ends	Q1 2012
Distribution automation asset deployment ends	Q2 2013

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